Galaxies: What are they?

SCRIPT:

If you look at the stars with a telescope, something amazing starts to happen. Many of the little things that look like stars turn out not to be stars, but galaxies, with strange shapes, that have changed everything we thought we knew about the Universe. We used to think our own galaxy, the Milky Way, was the whole Universe, and it was enormous. After all, our galaxy is a vast ocean of 200 billion stars. It was dazzling to think about the possibilities.

But then, in the 1920s, a man named Hubble, using a powerful telescope, discovered something we're still struggling to comprehend. Many of those little things we thought were stars turned out to be other galaxies like our own. Scientists found ten, then thousands, ultimately billions of other galaxies, each of them with billions of their own stars. The Universe was much bigger than we thought – a billion times bigger.

What does it all mean? Well, if the discovery of other galaxies showed us that the Universe is a billion times bigger than we thought, then more and more people began to think again about the idea that we have this place all to ourselves. Even some conservative scientists now believe that there may be life on other planets – not just a couple other planets, but millions of other planets…across the galaxies.

So, the next time you look up on a clear night…imagine…billions of other galaxies… far, far away. There's much more out there than we ever dreamed was possible.

Relevant NSES Standards

NSES Content Standard A: Understanding about scientific inquiry.
- (Grades K-4) Scientists develop explanations using observations.
- (Grades 5-8) Scientific explanations emphasize evidence.
- (Grades 9-12) New technologies provide new evidence.

NSES Content Standard D: Earth and space science.
- (Grades K-4) Objects in the sky. Stars (and galaxies).

NSES Content Standard E: Understanding about science and technology.
- (Grades K-4) Tools help scientists make better observations.
- (Grades 5-8) Technology provides better instruments for science.
- (Grades 9-12) Science often advances with introduction of new technology.

NSES Content Standard F: Science and technology in society.
- (Grades 5-8) Scientific knowledge influences the way people think.

NSES Content Standard G: History and nature of science.
- (Grades 5-12) Science can change as new evidence becomes available.

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